

Module 2: Airway

Lesson 2-1 Airway

Objectives

Objectives Legend

C=Cognitive P=Psychomotor A=Affective

1 = knowledge level

2 = Application level

3 = Problem-solving level

Cognitive Objectives

At the completion of this lesson, the CFR student will be able to:

- 2-1.1 List the components of the respiratory system (C-1)
- 2-1.2 List the signs of adequate breathing (C-1)
- 2-1.3 List the signs of inadequate breathing. (C-1)
- 2-1.4 Describe the steps in the head-tilt chin-lift. (C-1)
- 2-1.5 Describe the steps in the jaw thrust. (C-1)
- 2-1.6 Describe the techniques of suctioning. (C-1)
- 2-1.7 Describe how to ventilate a patient with a pocket mask or barrier device. (C-1)
- 2-1.8 Describe the steps in performing the skill of artificially ventilating a patient with a bag-valve-mask while using the jaw thrust (C-1)
- 2-1.9 Describe the steps in performing the skill of artificially ventilating a patient with a bag-valve-mask for one and two rescuers. (C-1)
- 2-1.10 Describe the steps in artificially ventilating a patient with a flow restricted oxygen-powered ventilation device. (C-1)
- 2-1.11 Describe how to measure and insert an oropharyngeal (oral) airway. (C-1)
- 2-1.12 Describe how to measure and insert a nasopharyngeal (nasal) airway.
- 2-1.13 Identify a non-rebreathing facemask and state the oxygen flow requirements needed for its use. (C-1)
- 2-1.14 Identify a nasal cannula and state the flow requirements needed for its use. (C-1)

Affective Objectives

At the completion of this lesson, the CFR student will be able to:

- 2-1.15 Explain why basic life support ventilation and airway protective skills take priority over most other basic life support skills. (A-3)
- 2-1.16 Explain the rationale for providing oxygenation through high inspired oxygen concentrations to patients who, in the past, may have received low concentrations.

Psychomotor Objectives

At the completion of this lesson, the CFR student will be able to:

- 2-1.17 Demonstrate artificial ventilation of a patient with a flow restricted, oxygen powered ventilation device. (P-1, 2)
- 2-1.18 Demonstrate how to measure and insert an oropharyngeal (oral) airway

- 2-1.19 Demonstrate how to measure and insert a nasopharyngeal (nasal) airway. (P-1, 2)

Preparation

Motivation:

A patient without an airway has no chance of survival. It is important for the CFR to be able to manage an airway with and without airway adjuncts.

Materials

AV Equipment:

Utilize various audio-visual materials relating to emergency medical care. The continuous development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to ensure that the objectives of the curriculum are met.

EMS Equipment:

Pocket mask, barrier devices, bag-valve-mask, oral airways, nasal airways, suction units (manual and battery powered), suction catheters, tongue blade; lubricant, oxygen tank, regulator, nonrebreather mask, nasal cannula, flow restricted oxygen powered ventilation device, airway management training manikins and CPR manikins.

Personnel

Primary Instructor:

One EMT-B instructor knowledgeable in airway management.

Assistant Instructor:

The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in airway techniques and management.

Recommended Minimum Time to Complete:

30 Minutes

Presentation

Declarative (What)

- I. The Respiratory system
 - A. Components/anatomy
 - 1. Nose and mouth
 - 2. Pharynx
 - a. Oropharynx
 - b. Nasopharynx
 - 3. Epiglottis - a leaf-shaped structure that prevents food and liquid from entering the trachea during swallowing.
 - 4. Windpipe (trachea)
 - 5. Voice box (larynx)
 - 6. Lungs
 - 7. Diaphragm
 - B. Infant and child anatomy and physiology considerations
 - 1. All structures are smaller and more easily obstructed than in adults.
 - 2. Infants' and children's tongues take up proportionally more space in the mouth than adults.
 - 3. The trachea is more flexible in infants and children.
 - 4. The primary cause of cardiac arrest in infants and children is an uncorrected respiratory problem.
- II. Opening the Airway
 - A. Head-tilt chin-lift when no neck injury suspected-review technique learned in BLS course.
 - B. Jaw thrust when the EMT-Basic suspects spinal injury - review technique learned in BLS course.
 - C. Assess for suctioning
- III. Determining presence of breathing
 - A. Adequate breathing is characterized by the following:
 - 1. Normal Rate
 - a. Adult - 12-20 / minute
 - b. Child - 15-30 / minute
 - c. Infant - 25-50 / minute
 - 2. Rhythm
 - a. Regular
 - b. Irregular
 - 3. Quality
 - a. Breath sounds - present and equal
 - (1) Free of gurgling, gasping, crowing or wheezing
 - 4. Chest expansion - adequate and equal
 - a. Minimum effort of breathing - use of accessory muscles - predominantly in infants and children
 - 5. Depth (tidal volume)

- a. Adequate and equal expansion of both sides of chest
- B. Inadequate breathing is characterized by the following:
 - 1. Rates outside the normal ranges
 - a. Less than 8 more than 20 in adults
 - b. Less than 10 more than 30 in children
 - c. Less than 20 more than 50 in infants
 - 2. Rhythm - irregular
 - 3. Inadequate chest wall motion
 - There may be retractions above the clavicles, between the ribs and below the rib cage, especially in children
 - 4. Quality
 - a. Chest expansion - unequal or inadequate
 - b. Increased effort of breathing - use of accessory muscles - predominantly in infants and children
 - 5. Cyanosis
 - 6. Mental status changes
 - 7. Increased effort
 - 8. Gasping
 - 9. Grunting
 - 10. Slow heart rate associated with slow respirations
 - 11. Depth (tidal volume) - inadequate/shallow
 - 12. Nasal flaring may be present, especially in children.
 - 13. In infants, there may be "seesaw" breathing where the abdomen and chest move in opposite directions
 - 14. Agonal respirations (occasional gasping breaths) may be seen just before death.
- V. Techniques of Suctioning
 - A. Body substance isolation
 - B. Suction device should be inspected on a regular basis before it is needed. A properly functioning unit with a gauge should generate 300 mmHg vacuum. A battery operated unit should have a charged battery.
 - C. Turn on the suction unit.
 - D. Attach a catheter.
 - 1. Use rigid catheter when suctioning mouth of an infant or child.
 - 2. Often will need to suction nasal passages; should use a bulb suction or French catheter with low to medium suction.
 - E. Insert the catheter into the oral cavity without suction, if possible. Insert only to the base of the tongue.
 - F. Apply suction.
 - 1. Move the catheter tip side to side.
 - G. Suction for no more than 15 seconds at a time.
 - 1. In infants and children, shorter suction time should be used.

2. If the patient has secretions or emesis that cannot be removed quickly and easily by suctioning, the patient should be log rolled and the oropharynx should be cleared.
 3. If patient produces frothy secretions as rapidly as suctioning can remove, suction for 15 seconds, artificially ventilate for two minutes, then suction for 15 seconds, and continue in that manner.
 4. Consult medical direction for this situation.
- H. If necessary, rinse the catheter and tubing with water to prevent obstruction of the tubing from dried material.

VI. Airway Adjuncts

A. Oropharyngeal (oral) airways

1. Oropharyngeal (OP) airways may be used to assist in maintaining an open airway in an unresponsive patient without a gag reflex.
2. Patients with a gag reflex may vomit when this airway is used.
3. Technique
 - a. Select the proper size: Measure from the corner of the patient's lips to the tip of the earlobe or angle of jaw.
 - b. Open the patient's mouth.
 - c. Insert the airway upside down, with the tip facing toward the roof of the patient's mouth.
 - d. Advance the airway gently until resistance is encountered.
 - e. Turn the airway 180 degrees so that it comes to rest with the flange on the patient's teeth.
4. Alternate technique - For use with infants and children
 - a. Select the proper size: Measure from the corner of the patient's lips to the bottom of the earlobe or angle of jaw.
 - b. Open the patient's mouth.
 - c. Use a tongue blade to press tongue down and away.
 - d. Insert airway in upright (anatomic) position.

B. Nasopharyngeal (nasal) airways

1. Nasopharyngeal (NP) airways are less likely to stimulate vomiting.
2. May be used on patients who are responsive but need assistance maintaining an airway.
3. Even though the tube is lubricated, this is a painful stimulus.
4. Technique
 - a. Select the proper size: Measure from the tip of the nose to the tip of the patient's ear.
 - b. Also consider diameter of airway in the nostril. NP airways should not be so large that it causes blanching of the nostril.
 - c. Lubricate the airway with a water soluble lubricant.
 - d. Insert it posteriorly. Bevel should be toward the base of the nostril or toward the septum.
 - e. The right nostril is preferred.

- e. If the airway cannot be inserted into one nostril, try the other nostril.
- f. Do not force this airway.

VII. Ventilation

- A. Once the airway has been assured, and breathing is assessed, breathing for the patient may be necessary.
- B. If the patient is not breathing they only have the oxygen in their lungs and their bloodstream remaining.
- C. In order to prevent death, the CFR must ventilate the patient.
- D. There are many techniques for ventilation--the CFR must be competent in the following three techniques of ventilation

VIII. Techniques of Ventilation

- A. The techniques of ventilation in order of preference are
 - 1. Two-person bag-valve-mask
 - 2. Flow restricted, oxygen-powered ventilation device
 - 3. One-person bag-valve-mask
 - 4. Mouth to mask
 - 5. Mouth to barrier device
 - 6. Mouth to mouth
- B. Bag-valve-mask
 - 1. The bag-valve-mask consists of a self-inflating bag, one-way valve, face mask, oxygen reservoir. Oxygen should be used for most effective performance. --
 - 2. Bag-valve-mask issues:
 - a. Volume of approximately 1,600 milliliters
 - b. Provides less volume than mouth to mask
 - c. Single CFR may have difficulty maintaining an airtight seal.
 - d. Two CFRs using the device will be more effective.
 - e. Position self at top of patient's head for optimal performance.
 - f. Adjunctive airways (oral or nasal) may be necessary in conjunction with bag-valve-mask.
 - 3. When no spinal trauma is suspected.
 - a. After opening airway, insert the appropriate sized oral or nasal airway adjunct, select correct mask size (adult, child or Infant).
 - b. Connect bag to mask and oxygen if not already done.
 - c. Position thumbs over top half of mask, index and middle fingers over bottom half.
 - d. Place apex of mask over bridge of nose, then lower mask over mouth and upper chin. If mask has large round cuff surrounding a ventilation port, center port over mouth.
 - e. Use ring and little fingers to bring jaw up to mask.

- f. Have assistant squeeze bag with two hands until chest rises.
 - g. If alone, form a "C" around the ventilation port with thumb and index finger; use middle, ring and little fingers under jaw to maintain chin lift and complete the seal. Using the hand, squeeze the bag until the chest rises.
 - h. Ventilate a minimum of every 5 seconds for adults and every 3 seconds for children and infants.
 - i. If chest does not rise and fall, re-evaluate.
 - (1) If chest does not rise, reposition head.
 - (2) If air is escaping from under the mask, reposition fingers and mask.
 - (3) Check for obstruction.
 - (4) If chest still does not rise and fall, use alternative method of artificial ventilation, e.g., pocket mask, manually triggered device.
4. Use with suspected spinal trauma
- a. Immobilize head and neck, e.g., have an assistant hold head manually or use your knees to prevent movement.
 - b. After opening airway, (using spinal precautions), Insert appropriate sized airway adjunct
 - c. Select the correct mask size (adult, child or infant).
 - d. Connect bag to mask and oxygen if not already done.
 - e. Position thumbs over top half of mask, index and middle fingers over bottom half.
 - f. Place apex of mask over bridge of nose, then lower mask over mouth and upper chin. If mask has large round cuff surrounding a ventilation port, center port over mouth.
 - g. Use ring and little fingers to bring jaw up to mask Without tilting head or neck.
 - h. Have assistant squeeze bag with two hands until chest rises.
 - i. Repeat every 5 seconds for adults and every 3 seconds for children and infants, continuing to hold jaw up without moving head or neck.
 - j. If chest does not rise, re evaluate.
 - (1) If abdomen rises, reposition jaw.
 - (2) If air is escaping from under the mask, reposition fingers and mask.
 - (3) Check for obstruction.
 - (4) If chest still does not rise, use alternative method of artificial ventilation, e.g., pocket mask.
- C. Flow restricted, oxygen-powered ventilation devices (Manually triggered, positive pressure device)
- 1. Flow restricted, oxygen-powered ventilation devices (for use in adults only) should provide
 - a. A peak flow rate of 100% oxygen at up to 40 LPM.

- b. An inspiratory pressure relief valve that opens at approximately 60 centimeters water and vents any remaining volume to the atmosphere or ceases gas flow.
 - c. An audible alarm that sounds whenever the relief valve pressure is exceeded.
 - d. Satisfactory operation under ordinary environmental conditions and extremes of temperature.
 - d. A trigger positioned so that both hands of the CFR can remain on the mask to hold it in position.
2. Use when **no** spinal injury is suspected
- a. After opening airway, insert correct size oral or nasal airway and attach adult mask.
 - b. Position thumbs over top half of mask, index and middle fingers over bottom half.
 - c. Place apex of mask over bridge of nose, then lower mask over mouth and upper chin.
 - d. Use ring and little fingers to bring jaw up to mask.
 - e. Connect flow restricted, oxygen-powered ventilation device to mask if not already done.
 - f. Trigger the flow restricted, oxygen-powered ventilation device until chest rises.
 - g. Repeat every 5 seconds.
 - h. If chest does not rise, re evaluate.
 - (1) If abdomen rises, reposition head.
 - (2) If air is escaping from under the mask, reposition fingers and mask.
 - (3) If chest still does not rise, use alternative method of artificial ventilation, e.g., pocket mask.
 - (4) Check for obstruction.
3. Use when there is spinal injury suspected.
- a. Immobilize head and neck, e.g., have an assistant hold head manually or use your knees to prevent movement.
 - b. After opening airway (using spinal precautions), insert correct size oral or nasal airway and attach adult mask.
 - c. Position thumbs over top half of mask, index and middle fingers over bottom half.
 - d. Place apex of mask over bridge of nose, then lower mask over mouth and upper chin
 - e. Use ring and little fingers to bring jaw up to mask without tilting head or neck.
 - f. Connect flow restricted, oxygen-powered ventilation device to mask, if not already done.
 - g. Trigger the flow restricted, oxygen-powered ventilation device until chest rises.
 - h. Repeat every 5 seconds.

- i. If chest does not rise and fall, re evaluate.
 - (1) If chest does not rise and fall, reposition jaw.
 - (2) If air is escaping from under the mask, reposition fingers and mask.
 - (3) If chest still does not rise, use alternative method of artificial ventilation, e.g., pocket mask.
 - (4) Check for obstruction.
- D. Mouth to mask ventilation
 - 1. Most effective CFR technique
 - 2. Most masks have a one way valve to divert the patient's exhalations.
 - 3. Masks should be transparent so that vomiting can be recognized.
 - 4. Mouth to mask ventilation is very effective since you use two hands to seal around the mask.
 - 5. Technique
 - a. If available, connect oxygen tubing to oxygen port on mask and set regulator at 15 liters per minute.
 - b. Place the mask around the patient's mouth and nose using the bridge of the nose as a guide for correct position. Mask position is critical since the wrong size mask will leak.
 - c. Seal the mask by placing the heel and thumb of each hand along the border of the mask and compressing firmly around the margin.
 - d. Place your index fingers on the portion of the mask that covers the chin.
 - e. Place your other fingers along the bony margin of the jaw and lift the jaw while performing a head tilt.
 - f. ***Give one slow (1 1/2 second) breath of sufficient volume to make the chest rise (usually 800-1200 ml in the average adult).***
 - g. Too great a volume of air and too fast an inspiratory time are likely to allow air to enter the stomach.
 - h. Adequate ventilation is determined by:
 - (1) Observing the chest rise and fall
 - (2) Hearing and feeling the air escape during exhalation
 - i. Continue at the proper rate
 - (1) ***10-12 breaths per minute for adults with 1 1/2 - 2 second ventilation time***
 - (2) ***20 breaths per minute for children and infants with 1 - 1 1/2 second inspiratory time.***
 - (3) ***40 breaths per minute for newborns with 1 to 1 1/2 second inspiratory time.***
 - j. If the ventilation cannot be delivered, consider the possibility of an airway obstruction.
 - E. Mouth-to-barrier device

1. A barrier device should be used if available.
2. Some rescuers may prefer to use a barrier device during ventilation.
3. Barrier devices have no exhalation valve and air often leaks around the shield.
4. Barrier devices should have low resistance to delivered ventilation.
5. Technique
 - a. If ventilation is necessary, position the device over the patient's mouth and nose ensuring an adequate seal.
 - b. Keep the airway open by the head tilt-chin lift or jaw thrust maneuver.
 - c. **Give one slow (1 1/2 second) breath of sufficient volume to make the chest rise (usually 800-1200 ml in the average adult).**
 - d. Too great a volume of air and too fast an inspiratory time are likely to allow air to enter the stomach.
 - e. Adequate ventilation is determined by:
 - (1) Observing the chest rise and fall
 - (2) Hearing and feeling the air escape during exhalation
 - f. Continue at the proper rate
 - (1) **10-12 breaths per minute for adults, with 1 1/2 - 2 second inspiratory time.**
 - (2) **20 breaths per minute for children and infants, with 1-1 1/2 second inspiratory time.**
 - (3) **40 breaths per minute for newborns, with 1 to 1 1/2 second inspiratory time.**
 - g. If the ventilation cannot be delivered, consider the possibility of an airway obstruction
- F. Mouth to mouth
 1. The CFR must be aware of the risks of performing mouth to mouth ventilation.
 2. Quick, effective method of delivering oxygen to the non-breathing patient
 3. Ventilating a patient with your exhaled breath while making mouth to mouth contact
 4. The rescuer's exhaled air contains enough oxygen to support life.
 5. Barrier devices and face masks with one way valves are available for use during ventilation.
 6. CFRs should always use these devices rather than the mouth to mouth technique.
 7. Mouth to mask/barrier device does not replace training in mouth to mouth ventilation.
 8. The decision to perform mouth to mouth ventilation by CFRs is a personal choice. Whenever possible, a barrier device or mouth to mask should be used.
 9. Technique

- a. Keep the airway open by the head tilt-chin lift or jaw thrust maneuver.
- b. Gently squeeze the patient's nostrils closed with the thumb and index finger of your hand on the patient's forehead.
- c. When ventilating an infants, cover the infants mouth and nose.
- d. Take a deep breath and seal your lips to the patient's mouth, creating an airtight seal.
- e. **Give one slow (1 1/2-2 second) breath of sufficient volume to make the chest rise.**
 - (1) Too great a volume of air and too fast an inspiratory time are likely to allow air to enter the stomach.
 - (2) Adequate ventilation is determined by:
 - (a) Observing the chest rise and fall
 - (b) Hearing and feeling the air escape during exhalation
- f. Continue at the proper rate
 - (1) **12 breaths per minute for adults**
 - (2) **20 breaths per minute for children and infants**
 - (3) **40 breaths per minute for newborns**
- g. If the ventilation cannot be delivered, consider the possibility of an airway obstruction

X. Special Considerations

A. **Patients with stomas**

1. Persons who have undergone a laryngectomy (surgical removal of the voice box) have a permanent opening (stoma) that connects the trachea to the front of the neck.
2. When such person requires rescue breathing, mouth to stoma ventilations are required.
3. Technique
 - a. Make an airtight seal around the stoma. Use a barrier device, if possible.
 - b. Deliver a ventilation slowly, allowing the chest to rise.
 - c. After delivering the ventilation, allow time for adequate exhalation.
4. Mask to stoma or tracheostomy tube
 1. Definition of tracheostomy - an artificial permanent opening in the trachea.
 2. If unable to artificially ventilate, try suction, then artificial ventilation through mouth and nose; sealing stoma may improve ability to artificially ventilate from above or may clear obstruction.
 3. Need to seal the mouth and nose when air is escaping when artificially ventilating at the stoma.

4. Bag-valve mask to stoma - use infant and child mask to make seal. Technique otherwise very similar to artificially ventilating through mouth. Head and neck do not need to be positioned.
 6. Some patients have partial laryngectomies. If, upon ventilating stoma, air escapes from the mouth or nose, close the mouth and pinch the nostrils.
- B. Infant and child patients
1. Place an infant's head in neutral position, but extend a little past neutral if the patient is a child.
 2. Avoid excessive hyperextension of the head.
 3. An oral airway may be considered when other procedures fail to provide a clear airway.
 4. Gastric distension is more common in children.
 5. Gastric distension may significantly impair ventilation attempts in children.
- C. Dental appliances
1. Dentures - ordinarily dentures should be left in place.
 2. Partial dentures (plates) may become dislodged during an emergency. Leave in place, but be prepared to remove it if it becomes dislodged.
- D. Equipment for oxygen delivery
1. Nonrebreather mask
 - a. Preferred method of giving oxygen to prehospital patients.
 - b. Up to 90% oxygen can be delivered.
 - c. Nonrebreather bag must be full before mask is placed on patient.
 - d. Flow rate should be adjusted so that when patient inhales, the bag does not collapse (15 LPM).
 - e. Patients who are cyanotic, cool, clammy or short of breath need oxygen. Concerns about the dangers of giving too much oxygen to patients with history of chronic obstructive pulmonary disease and infants and children have not been shown to be valid in the prehospital setting. Patients with chronic obstructive pulmonary disease and infants and children who require oxygen should receive high concentration oxygen.
 - f. Masks come in different sizes for adult, children and infants. Be sure to select the correct size mask.
 2. Nasal cannula
 - a. Rarely the best method of delivering adequate oxygen to the prehospital patient.
 - b. Should be used only when patients will not tolerate a nonrebreather mask, despite encouragement, explanation and instruction from the CFR.

Application

Procedural (How)

1. Show diagrams of the airway and respiratory system of adults, children, and infants.
2. Show examples of adequate breathing.
3. Show examples of inadequate breathing.
4. Demonstrate the head-tilt chin lift method of opening the airway.
5. Demonstrate the jaw thrust method of opening the airway.
6. Demonstrate mouth-to-mouth ventilation of a patient, using a barrier device.
7. Demonstrate ventilation of a patient with a pocket mask.
8. Demonstrate assembly of a bag-valve-mask.
9. Use a bag-valve-mask to demonstrate artificial ventilation of a non-spine-injured patient, with and without assistance.
10. Use a bag-valve-mask to demonstrate artificial ventilation of a suspected spinal injured patient, with and without assistance.
11. Demonstrate artificial ventilation of a non-spine-injured patient. with a flow restricted, oxygen-powered ventilation device.
12. Demonstrate artificial ventilation of a spine-injured patient with a flow restricted, oxygen-powered ventilation device.
13. Demonstrate insertion of an oropharyngeal (oral) airway.
14. Demonstrate insertion of a nasopharyngeal (nasal) airway.
15. Demonstrate how to check a suction unit.
16. Demonstrate the techniques of suctioning.
17. Demonstrate use of a nasal cannula.
18. Demonstrate use of a nonrebreather mask.
19. Demonstrate correct operation of oxygen tanks and regulators.
20. Demonstrate ventilation of a patient with a stoma.
21. Demonstrate ventilation of an infant or child patient.

Contextual (When, Where, Why)

Every patient must have a patent airway to survive. When the airway is obstructed, the CFR must clear it as soon as possible using the methods described in this lesson.

Once the airway has been opened, the CFR must determine if breathing is adequate. Patients with inadequate breathing must be artificially ventilated using mouth-to-mask, bag-valve-mask, a flow restricted oxygen - powered ventilation device, mouth to barrier device or mouth to mouth. If the patient has adequate breathing, the CFR must decide if oxygen is indicated. If

oxygen is necessary, the CFR must select the appropriate device and follow the procedure for delivery.

Student Activities

Auditory (Hearing)

1. The student should hear abnormal airway sounds such as gurgling, snoring, stridor, and expiratory grunting.
2. The student should hear a pocket mask/barrier device used on a patient.
3. The student should hear a bag-valve-mask being used on a patient with an open airway.
4. The student should hear a bag-valve-mask being used on a patient with an obstructed airway.
5. The student should hear a flow restricted, oxygen-powered ventilation device being used on a patient with an open airway.
6. The student should hear a flow restricted, oxygen-powered ventilation device being used on a patient with an obstructed airway.
7. The student should hear suction units being operated.
8. The student should hear an oxygen tank and flowmeter in operation.

Visual (Seeing)

1. The student should see audio-visual materials of the airway and respiratory system.
2. The student should see normal breathing in other students.
3. The student should see audio-visual materials of abnormal breathing.
4. The student should see audio-visual aids or materials of patients with stomas.
5. The student should see different kinds of oral and nasal airways.
6. The student should see different devices for ventilating patients (pocket masks, barrier devices, bag-valve masks, flow restricted oxygen powered ventilation device).
7. The student should see different kinds of suction units.
8. The student should see different kinds of oxygen tanks, regulators, and flowmeters.
9. The student should see nonrebreather masks and nasal cannulas.
10. The student should see audio-visual materials of various dental appliances.

Kinesthetic (Doing)

1. The student should practice evaluating breathing for adequacy.
2. The student should practice opening the airway with the head-tilt chin-lift maneuver.
3. The student should practice opening the airway with the jaw thrust.

4. The student should practice mouth-to-mouth ventilation using a barrier device.
5. The student should practice ventilation of a patient with a pocket mask.
6. The student should practice assembly of a bag-valve-mask.
7. The student should practice using a bag-valve-mask to artificially ventilate a non-spine-injured patient (adult, child, and infant) with and without assistance.
8. The student should practice using bag-valve-mask to artificially ventilate a spine-injured patient (adult, child, and infant) with assistance.
9. The student should practice artificial ventilation of a non-spine-injured patient with flow restricted, oxygen-powered ventilation device.
10. The student should practice artificial ventilation of a spine-injured patient with flow restricted, oxygen-powered ventilation device.
11. The student should practice insertion of an oropharyngeal (oral) airway (adult, child, and infant) with and without tongue blade.
12. The student should practice insertion of a nasopharyngeal (nasal) airway.
13. The student should practice checking a suction unit
14. The student should practice suctioning.
15. The student should practice ventilating a patient with a stoma.
16. The student should practice ventilating an infant or child patient.
17. The student should practice how to clear a Foreign Body Airway Obstruction for the responsive and unresponsive adult, child, and infant.

Instructor Activities

Facilitate discussion and supervise practice. Reinforce student progress in cognitive, affective, and psychomotor domains. Redirect students having difficulty with content. (Complete remediation form).

Evaluation

Practical:

Evaluate the actions of the CFR students during role-play, practice, or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

Written:

Develop evaluation instruments, e.g., case studies, examinations, oral reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Remediation

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

Enrichment

What is unique in the local area concerning this topic? Complete enrichment sheets from instructor's course guide and attach with lesson plan.